In the Claims

A complete listing of all claims of the application follows:

Claim 1. (Currently Amended) ~~Catalyst~~ A catalyst based on crystalline aluminosilicates of the pentasil type ~~characterized by the fact that it is constructed from~~ comprising primary aluminosilicate crystallites with an average diameter ~~of at least~~ from about 0.01 μm ~~and less than~~ to about 0.1 μm ~~which are combined to~~ wherein at least about 20% ~~to~~ of the crystallites are combined to form agglomerates ~~of 5 to~~ with a size from about 5 μm to about 500 μm, wherein the ~~primary~~ crystallites ~~or~~ and the agglomerates ~~being~~ are bonded together by finely divided aluminum oxide binder, ~~that is~~ wherein the catalyst has a BET surface ~~is~~ area from about 300 to about 600 m^2/g and ~~its~~ a pore volume ~~(determined according to mercury porosimetry)~~ ~~is~~ from about 0.3 to about 0.8 cm^3/g, ~~that it is present in H form, and that~~ and wherein, the amount of the finely divided aluminum oxide binder ~~is~~ comprises from about 10 to about 40 wt.%, ~~referred to~~ of the total weight of the aluminosilicate and binder. ~~in which the finely divided aluminum oxide binder is present in the reaction charge as a peptizable aluminum oxide hydrate, in which sodium aluminate is used as aluminum and alkali source and the primary synthesis of the crystalline aluminosilicate occurs without addition of acid.~~

Claims 2 - 19. (Canceled)

Claim 20. (New) The catalyst of Claim 1, wherein the aluminosilicate is in H^+-form.

Claim 21. (New) The catalyst of Claim 1, wherein the aluminum oxide is produced from a peptizable aluminum oxide hydrate.

Claim 22. (New) The catalyst of Claim 1, wherein the crystalline aluminosilicate has an Si/Al atomic ratio from about 50 to about 250.

Claim 23. (New) The catalyst of Claim 1, wherein the crystalline aluminosilicate has an Si/Al atomic ratio from about 10 to about 100.

Claim 24. (New) The catalyst of Claim 1, wherein the primary crystallites have an average diameter from about 0.01 μm to about 0.06 μm.

Claim 25. (New) The catalyst of Claim 1, wherein the primary crystallites have an average diameter from about 0.015 μm to about 0.05 μm.

Claim 26. (New) The catalyst of Claim 1, wherein at least about 10% of the pores of the catalyst have a diameter from about 14 to about 80 μm.

Claim 27. (New) The catalyst of Claim 1, wherein at least about 60% of the pores of the catalyst have a diameter from about 14 to about 80 μm.

Claim 28. (New) The catalyst of Claim 21, wherein at least about 95% of the particles of the peptizable aluminum oxide hydrate have an average diameter less than about 55 μm.

Claim 29. (New) The catalyst of Claim 1, wherein the finely divided aluminum oxide binder is obtained by hydrolysis of aluminum trialkyls or aluminum alcoholates.

Claim 30. (New) A process for producing the catalyst of Claim 1 comprising

a) producing an alkaline aluminosilicate gel in an aqueous reaction containing a silicon source, an aluminum source, an alkali source, and a template at an elevated temperature and converting the gel to primary aluminosilicate crystallites by interrupting the reaction when the primary crystallites have an average diameter from about 0.01 μm to about 0.1 μm;

b) separating the primary crystallites as preagglomerates from the reaction medium;

c) drying and calcining the preagglomerates;

d) reacting the calcined preagglomerates with a substance containing protons or donating protons;

e) separating, drying and calcining an agglomerate fraction obtained by the separation of the preagglomerates having a size from about 5 μm to about 500 μm;

f) mixing the agglomerate fraction with a finely divided aluminum oxide hydrate; and

g) calcining the mixed product.

Claim 31. (New) The process of Claim 30, wherein the calcining of process step (g) is conducted at a temperature from about 500°C to about 850°C for about 1 to about 12 hours.

Claim 32. (New) The process of Claim 30, wherein the

substance containing protons is an acid and wherein the acid concentration is from about 0.15 to about 2.5 mol H^+/mol Al_2O_3.

Claim 33. (New) The catalyst of Claim 30, wherein a source for at least a portion of the reactants of the aqueous reaction containing a silicon source, an aluminum source, an alkali source and a template is a mother liquor of a previous reaction process for production of the catalyst of Claim 1.

Claim 34. (New) The process of Claim 30, wherein the template comprises tetrapropylammonium hydroxide or tetrapropylammonium bromide.

Claim 35. (New) The process of Claim 30, wherein the template comprises a mixture of alumina or an organic amine and another organic compound selected from the group of alcohols.

Claim 36. (New) The process of Claim 30, wherein the pH of the reaction of step (a) is from about 10 to about 13, and wherein the temperature of that reaction is from about 90 to about 190°C.

Claim 37. (New) The process of Claim 30, wherein the alkaline aluminosilicate reaction is conducted at an agitation speed no greater than 900 rpm.

Claim 38. (New) The process of Claim 30, wherein the primary crystallites of process step (b) are separated by the addition of a flocculent.

Claim 39. (New) The catalyst of Claim 30, wherein the calcining process of step (c) is conducted in an inert atmosphere at a temperature from about 200 to about 350°C and

then in an oxidizing atmosphere at a temperature from about 500 to about 600°C.

Claim 40. (New) The process of Claim 30, wherein the temperature of the calcining step (e) is from about 400 to about 800°C for about 5 to about 20 hours.

Claim 41. (New) The process of Claim 30, wherein the primary aluminosilicate crystallites are produced without addition of an acid.

Claim 42. (New) The catalyst of Claim 1, used in a methanol to propylene conversion process or an olefin to olefin process.